# NOVITATES ANTILLANAE . VIII

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Continuing explorations and plant collecting, first in the Dominican Republic, and actually in Puerto Rico, have yielded some species new to science and quite a number of new records for both islands. My own field work, most of the time in the company of my wife Perfa, and at the present time accompanied by Luis F. Martorell, of the Botanic Garden of the University of Puerto Rico, and the lifelong field work of Roy O. Woodbury in Puerto Rico, have contributed to the production of a revised Check-list of the Flora of Puerto Rico; at the same time, the result of my own work, both in the field and in the Herbarium on the plants of Hispaniola, will soon produce the first publication on the Flora of Hispaniola. This last project has been in progress for several years and the first part will soon be published. As for the project of the Check-list of the Flora of Puerto Rico, the preparation of the manuscripts is well advanced, and will hopefully be printed within a few months.

Although there are many more new records for the island of Puerto Rico, I cite here only the plants I have been able to study, either in Mr. Woodbury's collections, or in my own. Some new combinations are also necessary as a result of my own studies in both floras. The Herbarium at the Botanic Garden of the University of Puerto Rico is here cited as UPR, and the Herbarium of the Jardín Botánico Nacional in Santo Domingo, as SDM.

LYCOPODIACEAE.

Lycopodium clavatum L.- PUERTO RICO: In open places, Toro Negro, A. & P. Liogier, L. Martorell 28287 (UPR 006); Cerro Maravilla, A. & P. Liogier, L. Martorell 28263 (UPR 085). New record for Puerto Rico; cosmopolitan.

MARATTIACEAE.

Marattia kaulfussii J. Smith - PUERTO RICO: At higher elevations, in Guilarte and Toro Negro, in upper palm forest, R. Woodbury (UPR 045). New record for Puerto Rico; tropical America.

SCHIZAEACEAE.

Lygodium venustum Sw.- PUERTO RICO: On shaded banks, Río Piedras, A. Liogier 29097 (UPR 050); La Muda, Caguas, A. & P. Liogier 29669 (UPR 049). New record for Puerto Rico; West Indies, continental tropical America.

Schizaea fluminensis Miers ex Sturm - PUERTO RICO: In wet forest, El Verde, Luquillo Mountains, Nov 1969, R. Woodbury (UPR 051). New record for Puerto Rico; Jamaica, Grenada, South America.

POLYPODIACEAE.

Polypodium repens Aubl.- PUERTO RICO: In wet forest, El Verde, Luquillo Mountains, at middle elevation, R. Woodbury (UPR 279). New to Puerto Rico; Greater Antilles, except Cuba, Lesser Antilles, Central America, northern South America.

Polytaenium urbanii (Brause) Alain, comb. nov.
Antrophyum urbanii Brause in Urb., Symb. Ant. 7: 487. 1913. DOMINICAN REPUBLIC: Barahona, Fuertes 1497b; endemic to Hispaniola.

PIPERACEAE.

Peperomia spathulifolia Small - PUERTO RICO: Luquillo Mountains, R. Woodbury (UPR 411), also observed by him in the Cayey Mountains. A new record for Puerto Rico; Bahamas.

Piper tuberculatum Jacq.- PUERTO RICO: In a limestone ravine, S. of Florida, on road 140, R. Woodbury (UPR 454, 455). New record for Puerto Rico; Cuba, Jamaica, Hispaniola, Guadeloupe, Trinidad, Tobago, continental tropical America.

URTICACEAE.

Laportea cuneata (A. Rich.) Chew.- PUERTO RICO: In a nursery, Río Piedras Botanic Garden, A. & P. Liogier 28837 (UPR 5054). A new record for Puerto Rico; Cuba, Hispaniola.

Pilea depressa (Sw.) Blume - PUERTO RICO: An escape from cultivation: A. & P. Liogier, L. Martorell, E. Solano 30014 (UPR 517); Cerro Pandura, Yabucoa, A. & P. Liogier, L. Martorell, E. Solano 31022 (UPR 6377). New record for Puerto Rico; native of Jamaica.

OLACACEAE.

Ximeniopsis Alain, gen. nov.

Frutex, pubescentia pilis simplicibus et pilis biramosis; rami elongati, ramuli brevi in spinas desinentes; folia alterna; flores 1-2 axillares; calyx parvus, brevis, 4-dentatus, non in fructo auctus; petala 4, valvata, linearia, intus barbata; stamina 4 petalis opposita, antherae lineares, rima longitudinali dehiscentes, filamenta brevia, libera; ovarium 3-4-loculare, stylus integer, stigma apice non ampliatum; ovula 3-4, linearia, pendula; fructus drupaceus, globosus, epicarpium tenue, endocarpium coriaceum; semina 1, endospermum carnosum. In Hispaniola crescit.

Ximeniopsis horridus (Urb. & Ekm.) Alain, comb. nov.
Ximenia horrida Urb. & Ekm. in Ark. Bot. 20 (15): 19. 1926.
HAITI: Manneville, Ekman 3065 (Typus, S); Morne Grammont, Ekman 3357; Anse à Pitre, Ekman 6699. DOMINICAN REPUBLIC: Duvergé, Howard 12120; Cabo Rojo to Las Mercedes, A. Liogier 13824 (NY); Monte Río, Azua, A. Liogier 14950 (NY); Cabo Rojo area, A. Liogier 16892 (NY); about 5 miles E of Pedernales, A. Liogier 17884 (NY); near Pedernales, A. & P. Liogier 23338 (UPR 5117), 25246 (UPR 5119), 26940 (UPR 5120); near La Descubierta, A. & P.

Fig. 1.- Ximenopsis horridus (Urt. & Ekm.) Alain

Liogier 27476 (UPR 5118).- Fig. 1

This genus is in many aspects similar to Ximenia L.; the main differences are:

A. Stamens 4, opposite the petals; flowers 1-2; ovary cells 3-4. Ximeniopsis.

A. Stamens 8; flowers several in a short inflorescence; ovary cells 3. Ximenia.

I have given much thought to this plant before deciding in the establishment of a new genus; the consistency of the four stamens, the 3-4-locular ovary justify my decision. It is very strange that I. Urban in describing the species, states the number of stamens as being 8; thanks to the Curator of the Riksmuseet in Stokholm, I have been able to study the type specimen Ekman 3065, and failed to find any flower with 8 stamens.

As Urban did not describe the fruit, I shall give here its description:

Fructus (in A. & P. Liogier 25246 et 26940) globosus, luteus (in sicco nigricans), usque 14 mm diam, apice apiculatus.

LORANTHACEAE.

Eubrachion ambiguum (Hook. & Arn.) Engl.- PUERTO RICO: West slope of Monte del Estado, Maricao, R. Woodbury (UPR 584, 585). New record for Puerto Rico; Jamaica, Hispaniola, Brasil, Uruguay, Argentina.

POLYGONACEAE.

Coccoloba tenuifolia L.- PUERTO RICO: Moist coastal forest, along cliff, Quebradillas, R. Woodbury (UPR 666). New to Puerto Rico; Bahamas, Cuba, Jamaica.

AMARANTHACEAE.

Acnida cuspidata Bert.- PUERTO RICO: In coastal marshes, Tortuguero Lagoon, R. Woodbury (UPR 5146, 5239, 5437). New to Puerto Rico; Florida, Greater Antilles, Trinidad.

Alternanthera pungens HBK.- PUERTO RICO: In dry area, Ensenada, A. & P. Liogier, L. Martorell 29505 (UPR 699). New to Puerto Rico; United States, tropical America, southern Europe, East Indies.

NYCTAGINACEAE.

Guapira obtusata (Jacq.) Little - PUERTO RICO: Guajataca, R. Woodbury (UPR 762); Road 112, R. Woodbury (UPR 763). New to Puerto Rico; Bahamas, Cuba, Jamaica.

CAPPARACEAE.

Cleome serrata Jacq.- PUERTO RICO: Near San Sebastián, A. & P. Liogier, S. Barrett, J. Shore 30751 (UPR 5859). New to Puerto Rico; Greater Antilles, Trinidad, continental tropical Ame-

rica.

CRUCIFERAE.

Rorippa heterophylla (Blume) Williams - PUERTO RICO: Road 155, R. Woodbury (UPR 955); Cerro La Santa, Guavate, A. & P. Liogier, L. Martorell 29791 (UPR 954). New to Puerto Rico; native of tropical Asia, established in North America and the West Indies.

DROSERACEAE.

Drosera capillaris Poir.- PUERTO RICO: In sandy soil, banks of Tortuguero Lagoon, R. Woodbury (UPR 960). New to Puerto Rico; North America, Cuba, Hispaniola, Jamaica, Central America, Trinidad, British Guiana.

CRASSULACEAE.

Kalanchoë blossfeldiana Poelln.- PUERTO RICO: On roadside, near Adjuntas, escaped from cultivation, A. & P. Liogier, L. Martorell, E. Solano 30380 (UPR 3113). New to Puerto Rico; native of Madagascar, cultivated in the tropics.

Bryophyllum daigremontianum (Hamet & Perry) A. Berger - PUERTO RICO: Spontaneous after cultivation in the southwestern districts: Ensenada, A. & P. Liogier, L. Martorell 29554 (UPR 962). New to Puerto Rico; native of Madagascar, cultivated in the tropics.

Bryophyllum tubiflorum Harv.- PUERTO RICO: Cultivated and escaped; typical collection: near Tortuguero, Vega Baja, A. & P. Liogier, S. Barrett, J. Shore 30668 (UPR 5960). New to Puerto Rico; native of S. Africa and Madagascar, becoming a weed after cultivation.

PAPAVERACEAE.

Argemone alba Letisb.- DOMINICAN REPUBLIC: On slope, near Constanza, A. & P. Liogier 27658 (SDM). New to Hispaniola; North America.

LEGUMINOSAE-MIMOSOIDEAE.

Mimosa casta L.- PUERTO RICO: Common in the eastern part of the island: Loiza, R. Woodbury (UPR 1027); southwest of Fajardo, A. Liogier & L. Martorell 28032 (UPR 1025); Sierra de Cayey, A. & P. Liogier, L. Martorell 29859 (UPR 1026). New to Puerto Rico; Lesser Antilles, Panama, Colombia, Brazil.

Neptunia oleracea Lour.- PUERTO RICO: Río Jueyes, A. & P. Liogier, L. Martorell 29390 (UPR 1035). New to Puerto Rico; Cuba, Central and South America, tropical Asia and Africa.

Pithecellobium domingense Alain, sp. nov.

Frutex 3 m altus, rami patenti; ramuli teretes, patente brunneo-pilosi, inermi; stipulae lineari-lanceolatae, 1 mm longae, striolatae; folia spiraliter disposita, petiolo 2-3 mm longo,

brunneo-piloso; pinnae 1-jugae rachis inter juga glandula globosa bipartita, dorso squama lanceolata obsita; foliola in 1-3 paria subsessilia, inter sese eglandulosa, summa oblique obovata, 2-2.5 cm longa, 1-1.5 cm lata, apice rotundata vel truncata, apice ipso breviter cuspidato-apiculata, basi versus angustata basi ipsa oblique rotundata, caetera minora, ovalia vel breve obovata, nervo medio supra leviter impresso, subtus prominulo, lateralibus supra obsoletis subtus 1-3, venis laxis, levissime reticulatis, supra glabra, subtus glabrescentes et pallidiora pergamacea. Inflorescentiae ad axillas solitarias vel binae, pedunculi 2.5-6 cm longi, brunneo-pubescenti, capitulatae; flores sessiles, bracteae oblongae, 5 mm longae, apice pubescentes; flores albi, glabri; calyx turbinatus, 3-3.2 mm longus, lobi minuti 0.2-0.3 mm longi, apice ciliati; corolla turbinata, 10 mm longa, lobi acuti 1 mm longi; stamina in altitudine corollae coalita, pars libera usque 1.4 cm longe exserta glabra; caetera ignota.

DOMINICAN REPUBLIC: On wooded slope, El Aguacate, Duvergé, alt 1,200 m, 25 June 1977, Alain & Perfa Liogier 27024 (Typus: SDM; Isotypus: NY).

This species in notable for its very short petiole, the 2-lobed gland, the number of pinnae in 1 pair and the number of leaflets in 1-3 pairs; these leaflets are truncate-cuspidate at the apex and present a callus at the base; not having seen the legumes, I cannot appreciate the affinities of this species. Characteristically, this plant has insect bites on the leaves, these forming galls covered with appressed brown hairs.

LEGUMINOSAE-CAESALPINIOIDEAE.

Cassia pilosa L.- DOMINICAN REPUBLIC: In woods, Loma de Cabrera, A. Liogier 27755 (UPR 1093, SDM), det. R. Barneby. New to the island of Hispaniola; Cuba, Jamaica, Central America, northern South America.

Cassia uniflora Mill.- PUERTO RICO: Ensenada, R. Woodbury (UPR 5164); A. & P. Liogier, L. Martorell 29551 (UPR 1105); waste grounds between Ponce and Adjuntas, A. & P. Liogier, L. Martorell 30243 (UPR 1552); found in the semi-dry thickets in the southwest of the island. New to Puerto Rico; Greater Antilles, Bahamas, Barbados, continental tropical America.

LEGUMINOSAE-PAPILIONOIDEAE.

Aschynomene brasiliana (Poir.) DC.- DOMINICAN REPUBLIC: Caballona, Sabana Guabatico, A. & P. Liogier 27694 (UPR 1116, SDM). New to Hispaniola; widespread in tropical America.

Brya ebenus (L.) DC.- PUERTO RICO: From Caguas to Cayey, A. Liogier, L. Martorell, R. Woodbury & E. Solano 30457 (UPR 5642). New to Puerto Rico; Cuba, Jamaica.

Crotalaria intermedia Kotschy - PUERTO RICO: On roadsides, near

Aibonito, A. & P. Liogier, L. Martorell 28799 (UPR 1161); on roadside, between Rosario and Maricao, A. & P. Liogier, L. Martorell & E. Solano 30885 (UPR 6220). New to Puerto Rico, an escape from cultivation; native of the Old World tropics, also in Guadeloupe, Martinique, Costa Rica.

Crotalaria pallida Ait. and C. falcata Vahl ex DC.- Following C. D. Adams (Flowering Plants of Jamaica, p. 344-347. 1972), I name the common species in Puerto Rico and Hispaniola C. falcata Vahl ex DC. (C. striata of Britton and Wilson); C. pallida Ait. has been collected by me in Puerto Rico: Las Mesas, Mayagüez, A. & P. Liogier 30545 (UPR 5709), 30660 (UPR 5934).

Crotalaria spectabilis Roth.- PUERTO RICO: Las Mesas, Mayagüez, A. Liogier, L. Martorell, F. & L. Gould, E. Solano 30534 (UPR 5711). New to Puerto Rico, perhaps an escape; native of India, scattered through the tropics.

Eriosema crinitum (HBK.) D. Don - PUERTO RICO: On sandy soil, Tortuguero Lagoon, R. Woodbury (UPR 5152). New to Puerto Rico; Cuba, Hispaniola, continental tropical America.

Galactia longifolia Benth.- PUERTO RICO: On roadside, Guayama, A. & P. Liogier 29066 (UPR 1211). New to Puerto Rico; Hispaniola, Lesser Antilles.

Indigofera hendecaphylla Jacq.- PUERTO RICO: Utuado to Caonillas, A. & P. Liogier, L. Martorell 29156 (UPR 1218); Lake Carite, A. & P. Liogier, L. Martorell 29783 (UPR 1217). New to Puerto Rico, introduced as a soil improver, now a weed; native of South Africa, introduced into Florida.

Macroptilium atropurpureum (DC.) Urb.- PUERTO RICO: A weed in the Isla Verde-Piñones area, A. & P. Liogier, L. Martorell 30151 (UPR 1553). New to Puerto Rico; Cuba, Hispaniola, Central America.

Vigna hosei (Craib) Back.- PUERTO RICO: A weed in the eastern part of the island; Agronomic Station, Río Piedras, A. Liogier 27987 (UPR 1293); waste grounds, Cayey, A. & P. Liogier 29052 (UPR 1295); on roadside, Carite Forest, A. & P. Liogier, L. Martorell 29717 (UPR 1294); Bayamón, R. Woodbury (UPR 5142). New to Puerto Rico; native of Borneo and Java, sometimes planted as a soil improver, also in the Lesser Antilles.

POLYGALACEAE.

Polygala crucianelloides DC.- PUERTO RICO: Río Abajo, Utuado, R. Woodbury (UPR 1464). New to Puerto Rico; Hispaniola.

Fig. 2.- Casabitoa perfae Alain

EUPHORBIACEAE.

Casabitoa Alain, gen. nov.

Frutex sarmentosus, verisimiliter dioecus; folia alterna; inflorescentiae femineae racemiformes e rami vetustiori pendentes, flores pauci brevipedicellati; bracteolae subulatae; sepala 6-8, subulata; petala nulla; discus lobulatus, lobi anguste oblongi; ovarium ovatum pilosum; styli 3, curvi, lineari, usque ad basim liberi, integri; fructus bacciformes, pyriformes, 3-loculari, semina 2 in quoque loculo, placenta centrali-apicalis; semina anguste oblonga.- Crescit in Hispaniola.

This genus is near to Phyllanthus; the main differences are: Phyllanthus is monoecious, with 4-6 calyx-lobes, the stigmas are bifid, multifid or dilated at the apex, the fruit is nearly always a capsule; in Casabitoa, the plant is dioecious, the calyx lobes are 6-8, the stigmas are simple and not dilated at the apex, the fruit is a fleshy drupe.

The generic name is given after the place where it has been collected. The plant is extremely rare, as we have seen only one very small population. In spite of a thorough search in the area, we have not been able to find male flowers.

Casabitoa perfae Alain, sp. nov.

Frutex sarmentosus, 3 m altus; rami grisei, pilosi, ramuli brunnei, dense pilosi, teretes; folia alterna, petiolo usque 4 mm longo, terete, pilosulo; lamina ovato-oblonga ad elliptica, basi rotundata vel obtusa vel truncata, apice acuminata, 5.5-15 cm longa, 3-5.5 cm lata, nervo medio supra impresso, subtus prominulo et piloso, venis utrinque prominulis, reticulatis, margine integra, plana, subcoriacea. Inflorescentiae femineae e ramis vetustioribus pendentes, racemosae, 4.5 cm longae, pilosulae, pauciflorae, pedunculo 3.5 cm longo; bracteolae subulatae, 1 mm longae; pedicelli 1 mm longi; sepala 6-8, subulata, 1.5 mm longa, extus pilosula; discus lobatus; ovarium ovoideum, 2 mm longum, 1 mm latum, pilosum, albidum; styli 3, curvati, 0.75 mm longi, lineari; fructus bacciformes, pyriformes, usque 5 cm longi, 3.5 cm lati, 3-loculares, loculi 2-seminei; semina anguste oblonga, 2.5 cm longa, 1 cm lata, laevia.

DOMINICAN REPUBLIC: In cloud forest, Alto Casabito, Bonao, 13 Oct. 1976, Alain & Perfa Liogier 25574 (Typus: UPR 5115; Isotypi: NY, US); id., 4 May 1975, A. & P. Liogier, Y. Garcia & N. Melo 23883 (UPR 5116, NY).

The specific name is given to this plant in honor of my wife Perfa, who discovered it.

Chamaesyce orbifolia Alain, sp. nov.

Suffruticosa e radice crasso, caules caespitosi, striati, rubro-brunnei usque 1.5 mm crassi, non radicantes, ad nodis incrassati, glabri, internodiis usque 1 cm longis, ramuli linea ventrali pilosuli; stipulae 0.4 mm longae, triangulares, margine fimbriatae; fo-

Fig. 3.- Chamaesyce orbifolia Alain

lia usque 1 mm longe petiolata, suborbicularia vel elliptica vel subreniformia, basi rotundata vel subcordata, apice rotundata vel subemarginata, usque 5 mm longa et 6 mm lata, nervo medio utroque latere inconspicuo, lateralibus nullis, margine integra incrassata obsolete recurva; superficie glabra, coriacea. Involucra ad apicem ramorum vel in axillis superioribus solitaria, usque ad 2 mm longe pedunculata, turbinata, glabra, 0.8 mm longa, basi acuta, intus ad faucem pilosa, lobi primarii triangulares, ciliati, glandulae transverse ellipticae, in sicco brunneae, 0.6 mm latae, appendice antica subnulla; styli 1 mm longi usque ad medium bifidi; ramis apice paullum dilatatis; capsulae nutantes valde exsertae 1.5 mm diametro, obtuse triangulares, glabrae; semina anguste ovata, grisea, transversim leviter rugulosa, 4-angula, angulo dorsali magis, ventrali minus prominente, ventrali sulcata, 1 mm longa, 0.6 mm lata.

MONA ISLAND, PUERTO RICO: On limestone plateau, near lighthouse, Feb. 22-24, 1968, R. Woodbury, L.F.Martorell & J. García 235 (Typus: UPR 5107; Isotypi: NY, US, GH).

This species is readily identified by its leaf-shape, its long-exserted capsule, its grayish seeds, its small stipules, toothed at the apex. It could be considered to belong to the Chamaesyce cowellii complex. C. cowellii Millsp. has much smaller leaves, the stipules are fringed near to the base, the leaves are not suborbicular and are thinner.

Croton stenophyllus Griseb.- PUERTO RICO: Piñeros Island, R. Woodbury (UPR 1640). New to Puerto Rico; Cuba.

Phyllanthus cuneifolius (Britt.) Croizat

A recent collection (Liogier 30794) of the plant named by Britton Andrachne (?) cuneifolia has both staminate and pistillate flowers; this enables me to determine the correct genus to which it belongs. The 3 filaments united forming a column, the 6-7 imbricate calyx-lobes, the 6-7 glands forming the disk in the staminate flowers, the cupuliform disk in the pistillate flowers, the 3 bifid styles, all point toward Phyllanthus. Contrary to Grady Webster's note in Journ. Arn. Arbor. 39: 208. 1958, this plant has to be named Phyllanthus cuneifolius (Britt.) Croizat, Journ. Wash. Acad. Sci. 33: 12. 1943. (Andrachne (?) cuneifolia Britton, Mem. Torr. Bot. Club 16: 72. 1920).

Add to the description: (See also Urban I.- Ark. Bot. 20 (15): 44. 1926.)

Planta monoica. Flores masculi usque 1 cm longe pedicellati; calyx 0.8 mm longus, lobi 6-7, basim 0.3 mm longe coaliti, caetera liberi imbricati viridi, apice in appendice brunneo suborbiculari 0.1 mm longo abrupte contracti; disci glandulae 6-7, inter calycis lobi disposita; stamina 3, filamenta in columna 0.3 mm longa coalita; antherarum loculi longitrorsum rimosi.

Recent collections: A. & P. Liogier 29570, pistillate flowers,

Fig. 4.- *Allophylus domingensis* Alain

and A. & P. Liogier 30794, staminate and pistillate flowers, both collections from the serpentine barrens, Susua, Puerto Rico.

I have also collected this plant in barren state in the Dominican Republic, between Oviedo to Los Salados, in the Pedernales Peninsula, A. Liogier 17005, sterile.

Phyllanthus debilis Klein ex Willd.- PUERTO RICO: Occasional as a weed in the San Juan area; representative specimens: Botanic Garden, Río Piedras, A. Liogier 28698 (UPR 1692), 28890 (UPR 1691). New to Puerto Rico; native of southern Asia and Ceylon, introduced into Guadeloupe, Indonesia and the Pacific Islands.

AQUIFOLIACEAE.

Ilex krugiana Loes.- PUERTO RICO: Aguada, Rincón, R. Woodbury (UPR 1760). New to Puerto Rico; Bahamas, Hispaniola.

SAPINDACEAE.

Allophylus domingensis Alain, sp. nov.

Frutex 2.5 m altus, ramosissimus, rami hornotini dense adpresse albido- vel ferrugineo-puberuli, vetustiores nigrescentes lenticellosi; folia 1-foliolata, foliolum (petiolo 2-4 mm longo), supra applanato vel leviter canaliculato, puberulo), ellipticum, basi obtusum vel acutiusculum, apice obtusum vel acutum, nervo medio supra leviter impresso, subtus prominulo, lateralibus utroque latere 6-8 supra albidis applanatis vel prominulis, subtus prominulis, ad marginem anastomosantibus, venis supra nullis, subtus paucis, laxe reticulatis, coriaceum, margine denticulatum, supra in sicco obscure brunneum, subtus pallidum, glabrum, in nervorum axillis barbatum, minute glanduloso-punctatum; inflorescentiae axillares, 2.5-3 cm longae, graciles, puberulae, simplices, pedunculo usque 8 mm longo; pedicelli 1-2 mm longi; flores albi 1.5-2 mm diam; sepala orbicularia margine glanduloso-ciliolata, albida; petala verosimiliter nulla; filamenta glabra; fructus ignotus.

DOMINICAN REPUBLIC: In forest on limestone rocks, Cañada de Cayo, Aceitillar, Pedernales, Jul 24-25, 1973, Alain & Perfa Liogier 19612 (Typus: UPR 5111; Isotypus: NY).

This plant is to be considered as belonging to the A. crassinervis Radlk. group. The small leaves with lax reticulation, the lateral nerves anastomosed at the margin, the absence of petals, the glabrous filaments are the main distinguishing characters. A. crassinervis has a different aspect, the branchlets are longer, not blackish, and the leaves are green on the upper side, pale green underneath; its flowers are larger and have white petals. Unfortunately, I have not been able to collect the fruits.

Allophylus montanus Alain, sp. nov.

Frutex 2-3 m altus, rami erecti cortice griseo vel subfusco, striato; ramuli puberuli; folia 3-foliolata, petiolo usque 1.5 mm longo; foliola 3 elliptica, obovata vel oblongo-elliptica, apice obtusa vel subacuta, basi versus angustata, basi ipsa acutata se-

Fig. 5.- Talisia jimenezii Alain

ssilia, intermedium 3.5-6 cm longum, 1.5-3 cm latum, laterales 1.8-3 cm longa, 1-2 cm lata, omnia in medio distale valde dentata, supra nervis albis prominulis, utroque latere 5-9, subtus pallide viridis prominulis, venis laxe reticulatis, subchartacea, supra in sicco brunnea nitida, subtus pallida, glabra, vel subtus nervo medio pulverulento; racemi axillares, usque 5 cm longi, puberuli pauciflori; bracteae subulatae, pilosae, 0.5 mm longae; sepala subulata, 0.4 mm longa, extus pilosa; petala non visa; ovarium globosum, glabrum, 0.2 mm diam; fructus (in Liogier 13787) globoso-ovoideus, 7 mm longus, 6.4 mm latus, brunneus, rugulosus.

DOMINICAN REPUBLIC: In woods, in a ravine, Hoyo de Pelempito, Pedernales, alt 900 m, 3-8 Jul 1971, Alain H. Liogier 18147 (Typus: NY; Isotypus: SDM); id., A. Liogier 13787 (NY).

This species is considered close to Allophylus haitiensis Radlk. & Ekm., which is distinguished by its glabrous branchlets, its leaflets up to 11 x 4.5 cm, the lateral nerves 8-12; the inflorescence is 6-7 cm long, the flowers are pedicellate and 2 mm in diameter.

Talisia jimenezii Alain, sp. nov.

Arbor 8 m alta glabra, rami teretes longitudinaliter striati, juniores rubro-brunnei; folia pari-pinnata, (petiolo 2.5-3 cm longo longitudinaliter striato supra applanato); foliola plerumque 4, opposita, sessilia, elliptica vel late elliptica, basi rotundata vel acuta, apice rotundata vel obtuse subcuspidata, 4-9 cm longa, 2-4.5 cm lata margine integra recurvata, nervo medio supra in sulco prominulo, subtus valde prominente, lateralibus utroque latere 8-12, utrinque prominulis ad marginem anastomosantibus, venis reticulatis, chartacea. Inflorescentiae axillares, 5-6 cm longae, glabrae; pedicelli 1 cm longi; calyx ut videtur leviter lobatus, in fructo 1 mm latus, glaber; petala non visa; discus lobatus glaber; fructus juvenili tantum visi, ellipsoidei apice stylo brevi coronati, ut videtur 1.8 cm longi, 1.2 cm lati glabri, superficie rugosi.

DOMINICAN REPUBLIC: In coastal thickets, Bayajibe, La Romana, at sea level, Oct 2, 1976, Alain & Perfa Liogier, & J.J. Jiménez 25442 (Typus: UPR 5113; Isotypus: NY); id. Feb. 21, 1976, Alain & Perfa Liogier 24886, sterile (NY, UPR 5112)

This plant has been named by José J. Jiménez Talisia oliviformis (HBK.) Radlk. The most obvious differences are in this last species: the petiolulate leaflets, the densely tomentose inflorescences, the sepals acute and tomentose outside, the fruits densely pale tomentulose. This is the first record of the genus in the West Indies, an obvious link with the vegetation in northern South America and in Central America.

Curiously, this plant has the same vernacular name in the Dominican Republic and in Venezuela for Talisia oliviformis: COTOPERI, or COTOPERIZ.

Fig. 6.- Pereskia quisqueyana Alain

MALVACEAE.

Sida javensis Cav. emend. Borss. ssp. expilosa Borss.- PUERTO RICO: A weed at lower and middle elevations; this plant was named by Britton & Wilson (Sci. Surv. Puerto Rico & Virg. Isl. V: 553. 1924) Sida humilis Cav., with some doubt. My own collections are: In forest, Guajataca gorge, A. & P. Liogier, L. Martorell E. Solano 30374 (UPR 3120); in thickets, Punta Vacía Talega, A. & P. Liogier, L. Martorell, E. Solano 30177 (UPR 2262); Cabeza Chiquita, Fajardo, A. & P. Liogier, L. Martorell, E. Solano 30091 (UPR 1988); in forest, Las Tetas, Cayey, A. & P. Liogier, L. Martorell 28475 (UPR 1989); above Cayey, A. & P. Liogier, L. Martorell 29051 (UPR 1990); scattered through the tropics.

HYPERICACEAE.

Hypericum ekmanii Alain, sp. nov.

Perennis lignosum usque 75 cm altum, glabrum, e radice crassa lignosa usque 1 cm crassa; caulis ramosus, rami ascendentes, striis binis e foliorum basi decurrentibus bianguli; folia oblonga vel subrhombea, apice acuta, basi versus in petiolum brevem (usque 1 mm longum) angustata, 7-9 mm longa, 2 mm lata, uninervia, nervo medio supra leviter impresso subtus prominulo, margine in sicco incurva, pellucido-punctata; flores in apice ramorum solitarii pedicelli 3-10 mm longi striati, complanati viridi vel brunnei; sepala aequalia, oblongo-linearia, apice acuta vel breve acuminata, usque 6 mm longa, 1-2 mm lata, inferne striata, superne pellucido-punctata, erecta; petala flava obovato-oblonga, usque 8 mm longa, 2 mm lata; stamina numerosa, libera, filamenta 3-4 mm longa, antherae orbiculatae 0.2 mm diam; styli 3, liberi, 3-8 mm longi; capsula oblonga, 3-4 mm longa, 2 mm lata, apiculata; semina lineari-oblonga, 1.2 mm longa, 0.3 mm lata, longitudinaliter et transversim striata, foveolata, pallide brunnea.

DOMINICAN REPUBLIC: On slope, in cloud forest, La Nevera, San José de Ocoa, alt 2000 m, Jun 9, 1978, Alain & Perfa Liogier 27672 (Typus: SDM); San José de Ocoa, Ekman 11718 (S).

This species is similar to H. christii Urb.; this last species differs in having only 10 stamens, the leaves are 2-5 mm long and the petals 4 mm long.

CACTACEAE.

Pereskia quisqueyana Alain, sp. nov.

Frutex 3-4 m altus, glaber; truncus usque 10 cm diam; rami hornotini in sicco striati pallide brunnei 3-4 mm diam; areolae paucae tomentosae, aculei pauci usque 2 cm longi, recti, fusci; folia elliptica vel obovato-elliptica vel oblanceolata, 4-6 cm longa, 1-2 cm lata, apice et basi acuminata, nervo medio supra obsoleto, subtus praesertim ad basim prominulo, minutissime glanduloso-punctata margine integra plana, in sicco membranacea; flores axillares solitarii; ovarium turbinatum, 8 mm longum et latum, areolis paucis non aculeatis obsitum, truncatum; petala roseo-rubra usque 2.2 cm longa, glabra, apice valde emarginata. Fructus igno-

Fig. 7.- Eugenia woodburyana Alain

tus.

DOMINICAN REPUBLIC: In coastal thickets, on limestone rocks, Bayahibe, La Romana, Jul 9, 1977, Alain H. Liogier 27032 (Typus: UPR 5114; Isotypi: NY, US).

This species is somewhat similar to Pereskia ziniifolia DC., from Mexico; this past species presents smaller leaves (up to 4 cm long), the flowers all terminal and larger (5 cm wide, against 4 cm in our species). As stated by Britton & Rose (The Cactaceae I: 21. 1920), P. zinniifolia is little known.

LYTHRACEAE.

Cuphea carthagenensis (Jacq.) Mcbr.- PUERTO RICO: A weed at lower and middle elevations; typical collections: Río Mar, Luquillo, A. & P. Liogier, L. Martorell 28195 (UPR 2253); at the base of Luquillo Mountains, A. Liogier, L. Martorell 28501 (UPR 2252); Florida, R. Woodbury (UPR 2255); coastal wet area, San Juan, R. Woodbury (UPR 2256). New to Puerto Rico; a native of South America, now a weed in tropical and subtropical America, Hawaii, Fidji, the Philippines, Okinawa.

MYRTACEAE.

Eugenia woodburyana Alain, sp. nov.

Arbor parva, usque 6 m alta; rami hornotini grisei minute puberuli, applanati, vetustiores tereti ad nodos incrassati; folia petiolo 1-2 mm longo, puberulo supra sulcato obovata vel elliptica, apice rotundata, basi angustata et in petiolum contracta, 1.5-2 cm longa, 1-1.5 cm lata, nervo medio supra applanato vel basim versus leviter impressus, subtus prominente, ad apicem evanescente, lateralibus utroque latere 5-8 supra prominulis a margine 1-2 mm anastomosantibus, subtus vix prominulis, margine plana leviter incrassata, plus minus ciliolata, supra nitentia obscure viridia, subtus pallida, glanduloso-punctata glabra chartacea; inflorescentiae axillares, abbreviatae 1-5-florae, pilosulae; pedunculi 1-3 mm longi; bracteae late ovatae 0.6 mm longae, ciliatae; calycis lobi 4, majores elliptici 4 mm longi, 3 mm lati, minores suborbiculares 3 mm longi, omnes pilosuli glanduloso-punctati margine ciliati; hypanthium obconicum, 8-costatum, pilosulum, petala suborbicularia, albida, 4 mm longa, 3.5 mm lata, glanduloso-punctata glabra; filamenta 5-6 mm longa, antherae ovato-rectangulares; ovarium 2-loculare; fructus globosus, longitudinaliter anguste 8-alatus, pilosulus, dense glandulosus, 2 cm longus et latus.

PUERTO RICO: In thickets on limestone, Guánica, Oct. 31, 1977, R. Woodbury (UPR 5108), specimen A (Typus: UPR; Isotypi: NY, US, GH); other specimens, from the same locality, presumably the same tree and the same collector: Specimen B (UPR 5110), flowers, May 1976; Specimen C (UPR 5109), barren, Feb. 1977.

A striking species for its 8-winged fruit. Specimens B and C have leaves up to 4 x 2.5 cm; Specimen C has leaves pilose on

Fig. 8 .- Myrciaria borinquena Alain

both faces.

Myrciaria borinquena Alain, sp. nov.

Verisimiliter arbor parva glabra; rami hornotini compressi grisei glandulosi, vetustiores teretes striati cortice fisso; folia (petiolo 6-8 mm longo supra canaliculato) ovata vel elliptica, basi rotundata vel obtusissima, apice acuminata vel raro rotundata, 4-8 cm longa, 3.5-4.5 cm lata, nervo medio supra ad basim vix impresso, subtus prominulo, lateralibus utroque latere 16-20 in sicco utrinque prominulis, ad marginem anastomosantibus, glandulis pellucidis obsita opaca, margine integra, chartacea. Inflorescentiae plerumque 4-florae valde abbreviatae ad ramos vetustiores sessilia, bracteae ovato-oblongae, membranaceae, 1 mm longae, glandulosae, bracteolae connatae, 1 mm longae; hypanthium supra germen 1.5 mm productum, discus 4 mm latus glaber; calycis lobi 2.5 mm lati; petala orbiculata 2 mm longa et lata glandulosa margine leviter fimbriata; stamina numerosa, antheris 0.3 mm longis; fructus non visus.

PUERTO RICO: Ranchos Guayama, Feb. 2, 1978, R. Woodbury (UPR 5103), Specimen A (Typus: UPR; Isotypi: NY, US, GH); id. Jan. 1978, sterile, R. Woodbury (UPR 5106), Specimen B; Coamo area, rd. 155, Km. 25, May 1977, R. Woodbury (UPR 5104), Specimen C; Coamo, May 1978, R. Woodbury (UPR 5105), Specimen D.

Among the species known from tropical America in this genus, this one is nearest to M. vexator McVaugh, by its total absence of pubescence; it is distinguished from it by its smaller and pellucid-dotted leaves, its fimbriate petals, its connate bracteoles, forming a cup subtending each flower.

Psidium insulanum Alain, sp. nov.

Verisimiliter frutex; rami hornotini subcompressi, rubri, pilosuli; vetustiores grisei cortice fisso; folia (petiolo 1-2 mm longo supra applanato glabro glanduloso) elliptica vel elliptico-ovata apice rotundata vel subemarginata saepe mucronulata, basi rotundata vel obtusissima, nervo medio rubro, supra prominulo subtus praesertim basim versus valde prominente, lateralibus utroque latere 4-6 ad marginem anastomosantibus, utrinque prominulis, venis reticulatis, glabra, supra nitida viridia, subtus vix opaca pallidiora, margine integra coriacea. Pedunculi axillares solitarii, 3 cm longi ad apicem leviter incrassati; bracteolae ad apicem pedunculi ellipticae vel ovatae 1.5 mm longae glabrae; fructus globulosus 6 mm longus 5 mm latus glaber, 3-locularis; calycis lobi ovati usque ad 3 mm longi glabri glandulosi.

VIEQUES ISLAND, PUERTO RICO: East Point, May 24 1978, R. Woodbury (UPR 5101) (Typus: UPR; Isotypus: NY).

This species can be placed near P. brevifolium Alain, from the Dominican Republic, which is glabrous, has sessile leaves, the pedicels are much shorter (6-7 mm long), the fruit larger (up to 13 x 8 mm), the calyx lobes semi-orbicular, 2 mm long.

Fig. 9.- *Psidium insulanum* Alain

MELASTOMATACEAE.

Miconia virescens (Vahl) Triana - PUERTO RICO: In forest, Toro Negro, R. Woodbury (UPR 2594). New to Puerto Rico; Hispaniola, Lesser Antilles, Venezuela.

Pterolepis glomerata (Rottb.) Miq.- PUERTO RICO: Maravilla area, Toro Negro, Rd. 143, R. Woodbury (UPR 3275); Lago Guineo, Alt. 900 m, A. Liogier, F. & L. Gould, E. Solano 30583 (UPR 5700). New to Puerto Rico; Hispaniola, some of the Lesser Antilles, tropical South America.

ONAGRACEAE.

Ludwigia decurrens Walt.- PUERTO RICO: In a stream, San Lorenzo, R. Woodbury (UPR 2643). New to Puerto Rico; tropical and subtropical America.

MYRSINACEAE.

Ardisia solanacea Roxb.- PUERTO RICO: Planted for ornament and naturalized in the western half of the island; Guajataca Camp, A. & P. Liogier, L. Martorell 28680 (UPR 2719). New to Puerto Rico; native of India, cultivated in the tropics.

GENTIANACEAE.

Leiphaimos parasitica Schl. & Cham.- PUERTO RICO: In forest, near Arecibo, R. Woodbury (UPR 2832); Tortuguero, Vega Baja, R. Woodbury (UPR 5441). New to Puerto Rico; Florida, Bahamas, Greater Antilles, Mexico.

CONVOLVULACEAE.

Aniseia martinicensis (Jacq.) Choisy - PUERTO RICO: In swampy area, Lake Tortuguero, Vega Baja, R. Woodbury 5573 (UPR 5205). New to Puerto Rico; Florida, West Indies, Panama, northern South America.

Ipomoea aquatica Forsk.- PUERTO RICO: In ponds and marshes, Piñero Island, R. Woodbury (UPR 2914).- New to Puerto Rico; native of the East Indies, cultivated and escaped in the tropics.

BORAGINACEAE.

Heliotropium saonae Alain, sp. nov.

Herba caespitosa ad nodos radicans; caules filiformes pilis albidis laxe pilosi; folia alterna, petiolo 1-2 mm longo, piloso, lamina elliptica vel ovato-elliptica, basi obtusa vel cuneata, apice acuta, 1.5-2.2 mm long, 0.8-1.5 mm lata, integra margine plana, nervio medio supra obsoleto, subtus basim versus praesertim prominulo, lateralibus nullis, venis in sicco saepe minute reticulatis, utrinque pilis albidis strigosa; flores solitarii axillares; pedicelli in anthesi brevi 1 mm longi, in fructo valde elongati, usque 1.5 cm longi; calycis lobi subulati 1 mm longi strigosi; corolla alba 6 mm longa, tubus pars inferiori 2 mm longa angusta, superne dilatatus, pilosus, lobi 5 obovati 3 mm longi 1.5 mm lati;

stamina 5 ad corollam adnata in corollae parte dilatata affixa, 0.8 mm longa, filamenta nulla; fructus 4-coccus verisimiliter in maturitate hypogaeus, cocci sphaerici 1 mm diam.

DOMINICAN REPUBLIC: Saona Island, in open thickets, on limestone, Mano-Juan, at sea level, Nov. 30 - Dic. 1, 1977, Alain & Perfa Liogier, José J. Jiménez 27223 (Typus: UPR 5102).

This species is very distinct by its 4-lobed fruit, the lobes spherical, the corolla very narrow at the base, dilated toward the apex, the lobes spreading. It resembles in habit to H. lagoense (Warm.) Gürcke (H. antillanum Urb.), whose flowers are long-pedicelled, the fruits are beaked and not hypogaeous.

LABIATAE.

Satureja viminea L.- PUERTO RICO: In serpentine barrens, Susúa State Forest, R. Woodbury (UPR 3231). New to Puerto Rico; Greater Antilles.

SCROPHULARIACEAE.

Veronica peregrina L.- PUERTO RICO: On roadside, in the Cerro Maravilla area, A. & P. Liogier, L. Martorell 28915 (UPR 3395). New to Puerto Rico; native of North America, naturalized in Bermuda, the Bahamas, Hispaniola.

ACANTHACEAE.

Barleriola solanifolia (L.) Oerst.- PUERTO RICO: Coastal hills, near Manatí, R. Woodbury (UPR 3466); Mar Chiquita, R. Woodbury (UPR 5156). New to Puerto Rico; Cuba, Hispaniola.

RUBIACEAE.

Randia parvifolia Lam.- MONA ISLAND, PUERTO RICO: On dry limestone; cultivated in the Botanic Garden, Río Piedras, A. Liogier 28840 (UPR 3395). New to the Flora of Puerto Rico and the adjacent islands;Hispaniola.

CUCURBITACEAE.

Anacaona Alain, gen. nov.

Scandens, monoicus, pilis articulatis obsitus et minute tomentosus; folia 3-5-lobata, cirrhi 3-partita; flores masculi in axillis fasciculati; calyx campanulatus, lobi basi connati; corolla subcylindrica, lobi alte connati; stamina 3 e columna basali libera, antherae sigmoideo-flexuosae, staminodia nulla; flores feminei solitarii, sepala usque ad basim libera, petala 5, in alabastro connata, in aestivatione ad basim libera; staminodia nulla; ovarium ovoideum, 3-loculare; styli 3, bifidi, incurvi, rama altera una longiora; ovula numerosissima, horizontalia; fructus sphaericus, indehiscens, exocarpium coriaceum, semina nulla horizontalia, elliptica. Crescit in Hispaniola.

This genus is similar to Posadaea Cogn., from Central America; the main difference is in the petals, which in Posadaea are free

Fig.10.- Anacaona sphaerica Alain

to the base in the staminate flowers; the pistillate flowers have three staminodia in Posadaea, and the stigmas are entire and obcordate, reflexed. Anacaona is peculiar in having the stigmas bifid, with the unequal branches incurved. Anacaona is the name of a famous Indian Queen, at the time of the discovery and the conquest of the Island of Hispaniola, or Quisqueya.

Anacaona sphaerica Alain, sp. nov.

Alte scandens, 8-10 m alta, monoica; rami graciles, pilis articulatis obsiti et minute pilosi, in maturitate longitudinaliter sulcati; petiolus gracilis 4-5 cm longus dense pilis articulatis obsitus; folia plerumque 3-5-lobata basi profunde cordata, sinus rotundatus, 5-8 cm longa, 5-7 cm lata, e basi 3-5-nervia, nervis supra pallidis applanatis subtus prominulis, venis subtus laxe reticulatis, supra pilosa et tomentosa, subtus dense albido-pilosa, margine minute et remote dentata, lobi mucronati, membranacea; cirrhi 3-ramosi. Flores masculi in axillis fasciculati; pedicelli usque ad 1 cm longi pilosi; calyx campanulatus, extus pilosus, 1 cm longus, lobi ovati usque 2 mm a basi liberi, acuminati; corolla pallide viridis, subcylindrica 1 cm longa, lobi alte coaliti apice acuti vel acuminati, extus pilosa; stamina 3 ad basim coalita, columna glabra, antherae sigmoideae, staminodia nulla; flores feminei in axillis solitarii, sepala 5 ovato-oblonga, 8 mm longa 4 mm lata, apice acuta, extus pilosa; petala in alabastra coalita, in aestivatione 5 mm longa, ovata; ovarium ellipsoideum, 3 mm longum, 2 mm latum, pilosum; fructus sphaericus vel paullo applanatus, usque ad 7 cm diam, laevis, viridis vel luteus; semina multa, horizontalia, elliptica 6 mm longa, 3 mm lata.

DOMINICAN REPUBLIC: Along Tablones River, Ciénaga de Manabao, Jarabacoa, alt 1,000 m, Mar 16, 1977, Alain H. Liogier 26588 (Typus: UPR 5121; Isotypi: NY, US); id., Aug. 14, 1968, A. Liogier 12074 (NY, pistillate flower); Loma Campanario, Ciénaga de la Culata, Constanza, alt. 1650-1850 m, A. Liogier 16072 (NY) in fruit.

Psiguria trifoliata (L.) Alain, comb. nov.

Anguria trifoliata L., Sp. Pl. ed. 2, 1376. 1763.

Anguria cookiana Britt. in Britt. & Wils., Sci. Surv. Puerto Rico & Virgin Islands 6: 267. 1925.

I here reduce Anguria cookiana Britt. to the synonymy of Psiguria trifoliata; the few differences are well within the variability of this last species, known also from Hispaniola, and are in agreement with the specimens from that island.

LOBELIACEAE.

Lobelia salicina Lam.- PUERTO RICO: MONA ISLAND: On limestone rocks, facing the sea, R. Woodbury & J. Vivaldi (UPR 3809). New to the Flora of Puerto Rico; Cuba, Hispaniola. This is an interesting ecological stunted form, due to exposure to the sun and salt spray.

COMPOSITAE.

Aster subulatus Michx. var. cubensis (DC.) Shinners (A. exilis Ell.).- PUERTO RICO: Frequent as a weed in the wet parts of the island; typical collections; Cerro Maravilla, A. & P. Liogier, L. Martorell 28241 (UPR 3821), 28946 (UPR 3822); Punta Comején, Río Grande, A. & P. Liogier, L. Martorell 29212 (UPR 2823); Tortuguero Lagoon, Vega Baja, R. Woodbury (UPR 5147). New to Puerto Rico; southeastern United States, Bahamas, Greater Antilles, Mexico.

Centratherum punctatum Cass.- PUERTO RICO: Cultivated and escaped in wet parts; typical collections: Trujillo Alto, A. & P. Liogier28490 (UPR 3834); Caonillas, A. & P. Liogier, L. Martorell 29161 (UPR 3833). New to Puerto Rico; native of Brazil.

Crepis japonica (L.) Benth.- PUERTO RICO: A weed, now generalized in many areas, mostly in wet regions; typical collections: Botanic Garden, Río Piedras, A. Liogier 28775 (UPR 3860), 27910 (UPR 3861); on roadsides, near Adjuntas, A. & P. Liogier, L. Martorell 30249 (UPR 3859). New to Puerto Rico; native of Asia, naturalized and becoming a weed in the Greater Antilles, and in tropical America.

Taraxacum officinale Weber - PUERTO RICO: A weed in Cerro Maravilla, Cordillera Central, A. Liogier, F. & L. Gould 30581 (UPR 5779). New to Puerto Rico; native of north temperate countries, now widespread.

GRAMINEAE.

Agrostis hyemalis (Walt.) B.S.P.- PUERTO RICO: On top of Cerro de Puntita, Jayuya, A. & P. Liogier, L. Martorell 28948 (UPR 4069); id. F. W. Gould, A. Liogier, E. Solano 15856 (UPR 6027). New to Puerto Rico; eastern United States, Hispaniola.

Brachiaria echinulata (Mez) Parodi - PUERTO RICO: On roadside, San Santa Isabel, A. & P. Liogier, L. Martorell 29380 (UPR 4107). New to Puerto Rico; West Indies, to Bolivia and Paraguay.

Brachiaria plantaginea (Link) Hitchc.- PUERTO RICO: Common weed in the whole island; typical collections: Sabana Grande, A. & P. Liogier, N. Melo 29584 (UPR 4117); El Yunque, Luquillo Mts., A. & P. Liogier, L. Martorell 29282 (UPR 4118); in cane fields, Toa Baja, A. & P. Liogier 28646 (UPR 4119); Botanic Garden, Río Piedras, A. Liogier 28627 (UPR 4120); between Caguas and Carite, F. W. Gould with R. Woodbury, L. Martorell, E. Solano 15752 (UPR 6046); Mayagüez, F. W. Gould 15821 with A. Liogier, L. Martorell, E. Solano (UPR 6208). New to Puerto Rico, introduced as a pasture, now widespread; United States to Argentina.

Brachiaria ruziziensis R. Germain & C. Evrard - PUERTO RICO: Introduced as a pasture, now a weed; typical collections: Jardín

Botánico, Río Piedras, F. W. Gould & L. Martorell 15737 (UPR 6043); Las Mesas, Mayagüez, A. & P. Liogier, S. Barrett & J. Shore 30657 (UPR 5959); id. A. & P. Liogier, E. Solano 30918 (UPR 6257).- New to Puerto Rico; native of tropical Africa.

Brachiaria subquadripara (Trin.) Hitchc.- PUERTO RICO; On roadside, Santa Isabel, A. & P. Liogier, L. Martorell 29385 (UPR 4125); Mayagüez, F. W. Gould 15798, with A. Liogier, L. Martorell, E. Solano (UPR 6045); Laguna Tortuguero, Vega Baja, F. W. Gould 15704, with R. Woodbury, L. Martorell, E. Solano (UPR 6040); Laguna Cartagena, F. W. Gould & A. Liogier 15845 (UPR 6044); Río Piedras Experimental Station, F. W. Gould & L. Martorell 15735 (UPR 6042). New to Puerto Rico; Cuba; native of India, used as a pasture.

Cynodon nlemfuensis Vanderhyst - PUERTO RICO: Introduced as pasture, and weedy in the island; Jardín Botánico, Río Piedras, F. W. Gould 15730 (UPR 6091).- New to Puerto Rico; native of tropical Africa.

Dactylis glomerata L.- PUERTO RICO: On top of Cerro de Punta, Jayuya, A. & P. Liogier, L. Martorell 28928 (UPR 4158).- New to Puerto Rico; native of Europe, introduced into the United States and Jamaica.

Dichanthelium dichotomum (L.) Gould - PUERTO RICO: In white sand area, Tortuguero Lagoon, Vega Baja, R. Woodbury (UPR 4171). New to Puerto Rico; southeastern United States, Mexico, Bahamas, Cuba, Hispaniola.

Dichanthelium ovale (Ell.) Gould & Clark var. addisonii (Nash) Gould & Clark - PUERTO RICO: Laguna Tortuguero, Vega Baja, F. & L. Gould, L. Martorell, E. Solano 15705. New to Puerto Rico; eastern, Central and southern United States, Mexico.

Dichanthium aristatum (Poir.) C.E. Hubb.- PUERTO RICO: Mayagüez, F. W. Gould 15820 with A. Liogier, L. Martorell, E. Solano (UPR 5982); Experimental Station, Río Piedras, A. Liogier 30143 (UPR 5080); Buchanan, R. Woodbury (UPR 5144); Ramos Isl., R. Woodbury & L. Martorell (UPR 5143). New to Puerto Rico; warmer regions of the Old World, introduced into America.

Digitaria bicornis (Lam.) R. & S.- PUERTO RICO: Río Loiza, A. & P. Liogier, L. Martorell, E. Solano 30219 (UPR 4179); Sabana Grande, A. & P. Liogier, N. Melo 29582 (UPR 4178); Cabeza Chiquita, Fajardo, A. & P. Liogier, L. Martorell, E. Solano 30122 (UPR 5843); Río Jueyes, A. & P. Liogier, L. Martorell 29450 (UPR 4180); Punta Comején, Río Grande, A. & P. Liogier, L. Martorell 29207 (UPR 4181); Susua Forest, A. & P. Liogier, N. Melo 29590 (UPR 4182); Coamo Dam, A. & P. Liogier, L. Martorell 29425 (UPR 4183); Laguna Cartagena, F. W. Gould & A. Liogier

15847 (UPR 5989), 15844 (UPR 5995). New to Puerto Rico; tropics and subtropics of the World.

Ichnanthus tenuis (Presl) Hitchc. & Chase - PUERTO RICO: Cerro de Pandura, Yabucoa, A. & P. Liogier, L. Martorell 30977 (UPR 6327). New to Puerto Rico; Trinidad, Central America, Colombia.

Lasiacis grisebachii (Nash) Hitchc. var. grisebachii - PUERTO RICO: Las Mesas, Mayagüez, F. W. Gould, A. Liogier, L. Martorell, E. Solano 15822 (UPR 6013). New to Puerto Rico; Mexico, Honduras, Cuba.

Leptochloa panicoides (Presl) Hitchc.- PUERTO RICO: Río Piedras, F. W. Gould & L. Martorell 15738 (UPR 6068). New to Puerto Rico; south-central United States, Mexico and Central America, Brazil.

Lolium perenne L.- PUERTO RICO: On top of Cerro de Punta, Jayuya, A. & P. Liogier, L. Martorell 28926 (UPR 4297); id. F. W. Gould 15851 with A. Liogier & E. Solano (UPR 6066). New to Puerto Rico; native of Europe, introduced into the New World, mostly in North America.

Panicum dichotomiflorum Michx.- PUERTO RICO: Lajas to Cabo Rojo, A. & P. Liogier, N. Melo 29613 (UPR 4308); Sierra de Cayey, A. & P. Liogier, L. Martorell 29908 (UPR 4309). New to Puerto Rico; United States to Argentina.

Paspalum arundinaceum Poir. in Lam.- PUERTO RICO: Near Guavate, F. W. Gould 15760, with R. Woodbury, L. Martorell, E. Solano (UPR 6052). New to Puerto Rico; West Indies, Central America, French Guiana, Brazil.

Paspalum dispar Chase - PUERTO RICO: In open places, Cerro La Santa, A. & P. Liogier, L. Martorell 29812 (UPR 4353); Orocovis to Morovis, A. Liogier 30060 (UPR 4352). New to Puerto Rico; Hispaniola.

Paspalum fasciculatum Willd.- PUERTO RICO: Introduced as a pasture and becoming a weed; typical collections: Botanic Garden Río Piedras, A. Liogier 29558 (UPR 4360); Experimental Agronomic Station, Río Piedras, A. Liogier 29099 (UPR 4361). New to Puerto Rico; southern Mexico to Ecuador and Argentina.

Poa annua L.- PUERTO RICO: In open place, Cerro de Punta, Jayuya, A. & P. Liogier, L. Martorell 28947 (UPR 4430). New to Puerto Rico; Cuba, Jamaica, Hispaniola, Bermuda; native of Europe, introduced into North America.

Poa pratensis L.- PUERTO RICO: On the summit of El Yunque, Luquillo Mts., A. Liogier 28318 (UPR 4431). New to Puerto Rico;

Bermuda, Jamaica, Hispaniola; native of Europe, introduced into North America.

Rottboellia exaltata L.f.- PUERTO RICO: On roadsides, a weed; typical collections: Agronomic Station, Río Piedras, A. Liogier 28892 (UPR 4435); Ponce, A. & P. Liogier 29363 (UPR 4434); El Rosario, Mayagüez, A. & P. Liogier, L. Martorell, E. Solano 30924 (UPR 6203). New to Puerto Rico; native of southern Asia, introduced as a weed into the West Indies.

Schizachyrium tenerum Nees - PUERTO RICO: On lateritic soil, Las Mesas, Mayagüez, A. & P. Liogier, L. Martorell, E. Solano 30902 (UPR 6253). New to Puerto Rico; Greater Antilles.

Setaria chapmani (Vasey) Pilger - PUERTO RICO: On white sand, Tortuguero, Vega Baja, R. Woodbury (UPR 4446). New to Puerto Rico; southern Florida, Bahamas, Cuba.

Vulpia bromoides (L.) S. F. Gray - PUERTO RICO: Near Cerro de Punta, Jayuya, A. & P. Liogier, L. Martorell 28929 (UPR 4247); id., F. W. Gould, A. Liogier, E. Solano 15853 (UPR 6080). New to Puerto Rico; United States, Jamaica, Hispaniola; native of Europe.

CYPERACEAE.

Rhynchospora longifolia Presl - PUERTO RICO:Guilarte Peak, R. Woodbury (UPR 4652); Cerro de Punta, Jayuya, A. Liogier, F. & L. Gould, E. Solano 30576 (UPR 5722). New to Puerto Rico; Cuba, Hispaniola, Lesser Antilles, Mexico.

Rhynchospora oligantha A. Gray var. breviseta Gale - PUERTO RICO: Tortuguero Lake, Vega Baja, R. Woodbury (UPR 4668); Dorado, on wet sand, R. Woodbury (UPR 4669); Luquillo Mts., R. Woodbury (UPR 4670). New to Puerto Rico; eastern and southern United States; Greater Antilles.

Rhynchospora oligantha A. Gray var. oligantha - PUERTO RICO: El Yunque, Luquillo Mountains, R. Woodbury (UPR 4667). New to Puerto Rico; New Jersey to Florida and Texas, Central America.

Rhynchospora plumosa Ell.- PUERTO RICO: In wet sand, Tortuguero, Vega Baja, R. Woodbury (UPR 4671, 4672, 4676, 4677, 4678, 4679, 5531); Dorado, R. Woodbury (UPR 4673, 4674, 4675). New to Puerto Rico; southeastern United States, Cuba.

Rhynchospora rariflora (Michx.) Ell.- PUERTO RICO: On moist sand, Tortuguero, Vega Baja, R. Woodbury (UPR 4686, 4687); Dorado, R. Woodbury (UPR 4684, 4685). New to Puerto Rico; eastern and southern United States, Greater Antilles.

Scleria georgiana Core - PUERTO RICO: On wet sand, Tortuguero,

Vega Baja, R. Woodbury (UPR 4703, 4704, 4706, 4707). New to Puerto Rico; southeastern United States; Greater Antilles, Honduras.

LEMNACEAE.

Wolffiella lingulata (Hegelm.) Hegelm.- PUERTO RICO: In water, Florida and Aguada, A. Liogier 30064 (UPR 4767), collected by R. Woodbury. New to Puerto Rico; southern California to Panama.

BROMELIACEAE.

Catopsis nutans Griseb.- PUERTO RICO: Epiphytic on trees, Barranquitas to Aibonito, A. & P. Liogier, L. Martorell 30064 (UPR 4772). New to Puerto Rico; Greater Antilles, Central America, Ecuador, Venezuela.

COMMELINACEAE.

Murdannia nudiflora (L.) Brenan - PUERTO RICO: On roadsides, Luquillo Mountains, A. & P. Liogier, L. Martorell 28164 (UPR 4828), 29287 (UPR 4829), 30471 (UPR 5672). New to Puerto Rico; Florida, Venezuela; native of Asia tropics.

JUNCACEAE.

Juncus tenuis Willd.- PUERTO RICO: Common on roadsides in the Central Mountains; typical collections: A. & P. Liogier, L. Martorell 28913 (UPR 4834), 28960 (UPR 4835), 28233 (UPR 4836); Toro Negro, J. L. Vivaldi 71-49 (UPR 5378). New to Puerto Rico; Jamaica; native of North America, now widely distributed as a weed.

AMARYLLIDACEAE.

Zephyranthes citrina Baker - PUERTO RICO: Introduced and escaped in wet places; typical collection: Cidra, A. & P. Liogier, L. Martorell 29082 (UPR 4856). New to Puerto Rico; Cuba, Hispaniola, British Guiana, Central America and Mexico.

IRIDACEAE.

Sisyrinchium exile Bickn.- PUERTO RICO: Near Cerro Maravilla, A. & P. Liogier, L. Martorell 28916 (UPR 4868); Cerro Maravilla, A. Liogier, F. & L. Gould, E. Solano 30580 (UPR 5772). New to Puerto Rico; Hispaniola, continental tropical America.

ORCHIDACEAE.

Basiphyllaea angustifolia Schltr.- PUERTO RICO: In forest, Maricao, R. Woodbury (UPR 4892). New to Puerto Rico; Cuba, Hispaniola.

Eulophidium maculatum (Lindl.) Pfitz.- PUERTO RICO: Common on northern slopes of the Central Mountains, at lower elevations; typical collection: Cambalache Forest, A. & P. Liogier, L. Martorell 29228 (UPR 4927); also observed on Mona Island. New to

Puerto Rico; Florida, Hispaniola, Trinidad, Venezuela to Peru and Argentina; tropical Africa.

Helleriella punctulata (Rchb.f.) Garay & Sweet - PUERTO RICO: In wet forest, upper Luquillo Mountains, R. Woodbury 5418 (UPR 5168); El Toro Trail, Luquillo Mountains, R. Woodbury (UPR 5165). New to Puerto Rico; Guadeloupe, Grenada, Andean regions of South America.

Maxillaria rufescens Lindl.- PUERTO RICO: In moist forests, El Verde, Luquillo Mountains, R. Woodbury (UPR 4982). New to Puerto Rico; Greater Antilles, Trinidad, Honduras to Brazil.

Spathoglottis plicata Blume - PUERTO RICO: Luquillo Mountains, A. & P. Liogier, L. Martorell 30472 (UPR 5675). New to Puerto Rico, escaped from cultivation; native of Malaysia.